

ABSTRACT

Radio Detecting and Ranging (RADAR) is a system for the detection of radio waves that are useful for detecting, measuring distances and map objects such as airplanes, military, and others. One type of radar using for Airport Surveillance Radar (ASR) used to monitor the movements of commercial aircraft when it enters / exits a certain airport area.

One of the crucial components in the Airport Surveillance Radar (ASR) system is an antenna. The antenna used is a array antenna which consist of several elements of antenna, and use variable phase or time-delay control of each port to scan the beam.

Antenna was realized using epoxy substrate material FR-4. Antena works at the frequency of the S-Band (2.1 to 3.1 GHz) which produces VSWR = 1,156, Gain 14,63 dBi and unidirectional radiation pattern. The dimensions of realized antenna is 404 mm × 257,9 mm × 91 mm that has effective bandwidth ≈ 378 MHz.

Keywords : *Antenna Array, S-Band, Vivaldi, ASR, Radar*